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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/775,658	02/09/2004	Xiaofeng Zhang	2855/110	1442

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10/12/2007

EXAMINER

KAPADIA, VARSHA A

ART UNIT	PAPER NUMBER
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2627

MAIL DATE	DELIVERY MODE
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10/12/2007

PAPER*

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/775,658	Applicant(s) ZHANG ET AL.	
	Examiner Varsha A. Kapadia	Art Unit 2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 July 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 and 8-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 8-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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This office action is responsive to the amendment filed on 7/23/07

Rejection Under 35 U.S.C. 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States:

Claims 1-5, 8-11, 13-15 and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Muranushi et al (5,153,785).

With regards to claims 1 and 3, Muranushi et al disclose apparatus to measure contact between a magnetic head and a storage medium (see figs. 7, 26-28 disclosure thereof and abstract) comprising: a current measuring device to measure current between the head and the disk (see elements 4-5 in figs. 7 and 26-28 and disclosure thereof); and a head gimbal assembly including a head to read/write information to/from the medium as claimed (See elements 2-3 and disclosure thereof).

With regards to claims 2 and 3, Muranushi et al disclose that the head is a magnetic head (see col.1 lines 9-13, element 2 and disclosure thereof).

With regards to claim 5, Muranushi et al further disclose that the magnetic disk (element 3) is coupled to a spindle (see elements 12-13 in fig.7 and disclosure thereof) and the spindle is coupled to the current measurement device (elements 4-5 in fig.7 and disclosure thereof).

With regards to claim 8, Muranushi et al disclose that the current measurement device comprises voltage source to supply power to the magnetic head (see fig.7 elements 1-5 and disclosure thereof).

With regards to claims 9-11 and 13-14, the method steps recited in claims 9-11 and 13-14 corresponds to the apparatus limitations recited in claims 1-5 and 8, respectively. Therefore, the rejection applied to apparatus claims 1-5 and 8 is also applied to method claims 9-11 and 13-14 for the same reasons of anticipation.

With regards to claims 15 and 17, Muranushi et al disclose method of determining fly height characteristics of the disk drive (see figs.7 and 26-28 disclosure thereof and abstract) comprising: coupling current measurement device (ammeter/voltage source) to a head and to a storage medium (see elements 2-6 and disclosure thereof; wherein Muranushi et al disclose capability of measuring current between the head and the medium) ; and determining that the head has too low of a flying height based on the current measurement (see figs. 7, 26-28 and col. 13 lines 32 to col. 14 line 23; wherein Muranushi et al also disclose capability of adjusting an amount of voltage applied to the head).

Claim 16 is rejected under 35 U.S.C. 102(b) as being anticipated by Frater et al (4,479,090).

With regards to claim 16, Frater et al disclose a method of determining glide height characteristics for a disk drive (See abstract, figs. 1A-3 and disclosure thereof) comprising: coupling current measurement device (elements 18- 19, A disclosure thereof and col.2 lines 53-58, wherein Frater et al also teach that the current may be measured by an ammeter) to a head gimbal assembly (see element 11-12 and disclosure thereof; wherein Frater et al disclose capability of measuring current between the head and the medium) ; and determining presence of disk asperities based on current measurement (see figs. 1A-1B, 4 disclosure thereof and col.1 lines 63-66).

Rejection Under 35 U.S.C. 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 6 and 12 rejected under 35 U.S.C. 103(a) as being unpatentable over Muranushi et al in view of Frater et al.

With regards to claims 6 and 12, Muranushi et al discloses the invention as described above in this office action. However, Muranushi et al fails to further specify that the current measurement device (elements 4-5) is a current amplifier.

Frater et al discloses that the amplifier is well known and widely used as an alternate current measurement device (See col.3 lines 46-49).

It would have been obvious to one of ordinary skill in the art at the time this invention was made to modify the apparatus disclosed by Muranushi et al with the above teachings from Frater et al in order to provide an alternate current measurement capability such as using an amplifier as taught by Frater et al., since no unexpected results would occur.

Response to Remarks

Applicant's arguments filed on 7/23/07 have been fully considered but they are not persuasive. Applicant argue that in reference to Muranushi et al the current measurement device is separate and distinct from the voltage source. Therefore, the prior art fails to suggest a current measurement device that is an ammeter/voltage source.

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Examiner respectfully disagree because, although the element 4 of fig.7 in the reference to Muranushi et al is identified as a current measurement device, one of ordinary skill in the art can broadly construe it to include the voltage source to be the part of the current measurement device. The rejection as applied to the claims above in this office action is considered proper.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Varsha A. Kapadia whose telephone number is (571) 272-7557. The examiner can normally be reached on Mon Tue and Thurs. from 6:30 AM to 2:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrea Wellington can be reached on 571 272 4483. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



VK



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